In the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (original) An electromagnet for use in a brake, comprising:

a polymer impregnated powder metal core containing a coil, and an injection molding material attached to said powder metal core, said powder metal having a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi, said injection molding material comprising a donor material having an elasticity greater than about 2 million psi that provides a hard protective wear resistant surface layer, a composite adhering coating layer, and an interim layer that has the ability to act in concert with shearing of said composite adhering coating.

2. (original) The electromagnet of claim 1, wherein said donor material comprises polyphenylene sulfide.

3. (previously presented) An electromagnet for use in a brake, comprising:

a polymer impregnated powder metal core containing a coil, and an injection molding material attached to said powder metal core, said powder metal having a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi, said injection molding material comprising a donor material having an elasticity greater than about 2 million psi that

provides a hard protective wear resistant surface layer, a composite adhering coating layer, and an interim layer that has the ability to act in concert with shearing of said composite adhering coating;

wherein said donor material comprises polyethylesulfide;

wherein further said injection molding material is comprised of 18-35% polyethylesulfide, 5-30% Kyanite, 4-18% Graphite, 9-40% Barite, and 8-30% Glass filler, by total weight of the donor material.

4. (original) The electromagnet of claim 1, wherein said Young's modulus of elasticity of said powder metal is between about 17 million psi and about 21 million psi.

5. (original) The electromagnet of claim 4, wherein said Young's modulus of elasticity of said powder metal is about 19 million psi.

6. (original) The electromagnet of claim 1, wherein said polymer impregnated powder metal core comprises a stamped annealed low carbon iron.

7. (original) The electromagnet of claim 6, wherein said stamped annealed low carbon iron is Hoerganaes Anchor steel 1000 series.

8. (original) The electromagnet of claim 1, wherein said polymer impregnated powder metal core is green pressed at about 30 tons per square inch and sintered at a temperature of about 2050 degrees Farenheit.

9. (original) An electromagnet assembly for a brake, comprising:

a powder metal housing and core, a bobbin, a copper coil, and a friction material comprising a polymeric donor material, where the donor material comprises 18% to 35% of a polymer from the group consisting of polyphenylene sulfide, epoxy and phenolic, 5% to 30% Kyanite, 4% to 18% graphite, 9% to 45% of a sulfide or sulfate compound, and 8% to 30% glass fibers, by the total weight of the donor material.

10. (original) The electromagnet of claim 9, wherein the donor material comprises polyphenylene sulfide.

11. (original) The electromagnet of claim 9, wherein said glass fibers are 0.005" to 0.015" in length and 0.0001" to 0.0005" in diameter.

12. (original) The electromagnet of claim 9, wherein said sulfide or sulfate compound is Barite.

13. (original) The electromagnet of claim 9, wherein said powder metal housing has a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi.

14. (original) An electromagnet assembly for a brake, comprising:

a powder metal housing and core, a bobbin, a copper coil, and a friction material comprising a polymeric donor material mixed therewith, where the donor material comprises 18% to 35% of a polymer from the group consisting of polyphenylene sulfide, epoxy and phenolic, 0% to 20% aluminum oxide, 4% to 18% graphite, 9% to 45% of a sulfide or sulfate compound, and 8% to 30% glass fibers, by the total weight of the donor material.

15. (original) The electromagnet of claim 14, wherein the donor material comprises polyphenylene sulfide.

16. (original) The electromagnet of claim 14, wherein said glass fibers are 0.005" to 0.015" in length and 0.0001" to 0.001" in diameter.

17. (original) The electromagnet of claim 14, wherein said sulfide compound is Barite.

18. (original) The electromagnet of claim 15, wherein said glass fibers are 0.005" to 0.015" in length and 0.0001" to 0.0005" in diameter.

19. (original) The electromagnet of claim 18, wherein said sulfide compound is Barite.

20. (original) The electromagnet of claim 14, wherein said powder metal housing has a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi.

21. (original) The electromagnet of claim 20, wherein said Young's modulus of elasticity of said powder metal is between about 17 million psi and about 21 million psi.

22. (original) The electromagnet of claim 21, wherein said Young's modulus of elasticity of said powder is about 19 million psi.

23. (canceled) An electromagnet for a brake, comprising:

a powder metal housing and core having grooves therein on their outer surface; and

a polymeric donor material in said core that encapsulates and fills the core and fills said grooves in said core.

24. (canceled) The electromagnet of claim 23, wherein said polymeric donor material comprises polyphenylene sulfide.

25. (canceled) The electromagnet of claim 23, wherein said Young's modulus of elasticity of said powder metal is between about 6.8 million psi and about 29.5 million psi.

26. (canceled) The electromagnet of claim 25, wherein said Young's modulus of elasticity of said powder metal is between about 17 million psi and about 21 million psi.

27. (canceled) The electromagnet of claim 26, wherein said Young's modulus of elasticity of said powder metal is about 19 million psi.

28. (canceled) The electromagnet of claim 23, wherein said polymeric donor material comprises glass fibers.

29. (canceled) The electromagnet of claim 28, wherein said polymeric donor material comprises a sulfide or sulfate compound.

30. (canceled) The electromagnet of claim 29, wherein said sulfide or sulfate compound comprises Barite.

31. (canceled) The electromagnet of claim 29, wherein said sulfide or sulfate compound comprises antimony trisulfide.

32. (original) An electromagnet assembly for a brake comprising:

a powder metal housing and core, a bobbin, a copper coil, and a friction material comprising a polymeric donor material, said powder metal housing having a rim with a thickness of between about 0.127 inches and about 0.400 inches.

33. (original) The electromagnet of claim 32, wherein said rim thickness is about 0.220 inches.

34. (original) The electromagnet of claim 32, wherein said polymeric donor material comprises at least one of polyethylenesulfide, epoxy, and phenolic.

35. (original) The electromagnet of claim 34, wherein said polymeric donor material comprises glass fibers.

36. (canceled) An electromagnet for use in a brake, comprising:

a polymer impregnated metal core containing a coil; and

a moldable material covering at least a portion of said metal core, the electromagnet having a magnetic cross section that is constant to within plus or minus three %.

37. (previously amended) An electromagnet for use in a brake, comprising:

a polymer impregnated metal core containing a coil; and

a moldable material covering at least a portion of said metal core, the electromagnet having a magnetic cross section that is constant to within plus or minus three %;

wherein said moldable material comprises a donor material having an elasticity greater than about 2 million psi.

38. (original) The electromagnet of claim 37, wherein said metal core has a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi.

39. (original) The electromagnet of claim 38, wherein said donor material comprises polyphenylene sulfide.

40. (original) An electromagnet for use in a brake, comprising:

a polymer impregnated powder metal core containing a coil; and

a moldable material covering at least a portion of said metal core,

the yield strength of the powder metal core being between about 18.5 ksi and about 50 ksi, the powder metal core being adapted to maximize the rigidity of the electromagnet.

41. (original) The electromagnet of claim 40, wherein said yield strength of said powder metal core is between about 20 ksi and about 50 ksi.

42. (original) The electromagnet of claim 41, wherein said moldable material comprises a donor material having an elasticity greater than about 2 million psi.

43. (original) The electromagnet of claim 42, wherein said powder metal core has a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi.

44. (canceled) An electromagnetic for use in a brake, comprising:

a polymer impregnated metal core containing a coil; and

a moldable material covering at least a portion of a face of said metal core.

45. (previously amended) An electromagnetic for use in a brake, comprising:

a polymer impregnated metal core containing a coil; and

a moldable material covering at least a portion of a face of said metal core;

wherein said moldable material comprises a donor material having an elasticity greater than about 2 million psi.

46. (currently amended) An electromagnetic for use in a brake, comprising:

a polymer impregnated metal core containing a coil; and

a moldable material covering at least a portion of a face of said metal core;

wherein said <u>polymer impregnated metal core has a yield strength and said yield strength</u> [[yield strength of said powder metal core]] is between 20 ksi and about 50 ksi.

47. (currently amended) An electromagnetic for use in a brake, comprising:

a polymer impregnated metal core containing a coil; and

a moldable material covering at least a portion of a face of said metal core;

wherein said polymer impregnated metal core [[powder metal core]] has a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi.

48. (canceled) An electromagnetic for use in a brake, comprising:

a polymer impregnated metal core containing a coil; and

a moldable material covering at least a portion of a face of said metal core;

wherein said donor material comprises polyphenylene.